## REMARKS

The present invention is directed to a "fluid dispensing apparatus," the operation of which involves installation thereinto of a "single-use fluid dispenser cartridge." The cartridge comprises a pliable fluid reservoir and a fill tube assembly, the cartridge incorporating (proximate either the reservoir or the fill tube assembly) means for continuously measuring fluid volume, particularly as a function of electrical capacitance. Accuracy, precision, and reliability are improved. Moving parts are minimal. The apparatus is useful particularly in the measured dispensation of viscous fluids.

Ten claims are pending. Claims 1 and 7 are independent. Claim 1 is directed to the "fluid dispensing apparatus". Claim 7 is directed to the "single-use fluid dispensing cartridge".

Claims 1 to 10 are subject to a FINAL restriction requirement. Claims 3 and 7 to 10 are withdrawn.

Claims 1, 2, and 4 to 6 are rejected under 35 U.S.C. § 103(a).

Reconsideration is requested.

For the reasons below, claims 1, 2, and 4 to 6 are felt patentable as originally presented.

### *Election/Restrictions*

Applicant acknowledges the examiner's withdrawal from further consideration of claims 3 and 7 to 10.

### *Claim Rejection - 35 U.S.C. § 103(a)*

In the Office Action, the examiner states, "Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keyes et al. (US 5,680,960) in view of Cohen et al. (US 5,135,485) and further in view of Sudolcan et al. (US 6,299,020)". The examiner argues:

> It ... would have been obvious for one of ordinary skill in the art at the time of the invention was made to use the detection system of Cohen in the apparatus of Keyes with the electroconductive terminals as taught by Cohen, since Sudolcan recognizes that optical sensors can have deficiencies when the material to be dispensed is less opaque, and that electroconductive terminals are more reliable for these types of materials.

Applicant disagrees.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Review of applicants' claimed invention and the art references of record reveal that the "suggestion" required for rejection under Section 103 is absent.

It is tempting to argue that given the sweeping disclosure of the Cohen reference -- a disclosure in which several electroconductive materials are mentioned together in proximity to a broadly configurable selection of embodiments thereof -- that one skilled in the art could have for unsaid reasons gravitated toward the application of certain of those embodiments in Keyes' dispensing apparatus. But such an ambitious reading is viable only in hindsight. It is one thing to identify in the Cohen reference

recitations of a "capacitors", and "I.V. and catheter bags". It is quite another matter to, leap forward, and argue that the Cohen reference instructs or otherwise suggests the use of capacitance measurement in a fluid dispensing apparatus configured for and distinguished by its optical measurement. There is no motivation in any of the cited secondary art references to proceed along such lines, much less basis for a "reasonable expectation of success".

Keyes' "fluid dispensing apparatus" provides an alternative to so-called "positive displacement fillers," "time pressure fillers," and conventional "volumetric fillers." *See*, Keyes reference, col. 1, line 10 to col. 2, line 22. Responding to certain shortcomings of such conventional fillers, Keyes discloses a bag-based volumetric approach that is enabled specifically with optical technology. Throughout Keyes' specification, optics is pervasive. "Sight tubes" are utilized. Lasers and photosensors are employed. Meniscuses are read.

Combining the teachings of the Cohen and Sudolcan references with the Keyes reference would have changed fundamentally and substantially the operation and design of the Keyes apparatus. Such redesign seems apparent only in hindsight. The combination is in fact quite questionable. Both references are concerned principally with the "internal volume" measurement, not -- as Keyes -- with "dispense volume" measurement.

Claim 1, in addition to reciting "a pair of electroconductive terminals", refers also to "control means" responsive to the capacitance of said current for selectively controlling said dispensing of said fluid from said fill tube assembly, or said introduction of fluid from said reservoir, or said release of fluid from said reservoir". As stated in applicant's specification:

> The electroconductive terminals by themselves are not sufficient to render operable the fluid dispensing apparatus. The electroconductive terminals need to be wired or linked or otherwise connected to both an energy source and an electronic control mechanism, both of which can be integrated within a single sub-component. The energy source essentially drives a current through both terminals, whilst the electronic control mechanism -- for example, by incorporation of a potentiometer or like electronic sensor -- measures the capacitance of said current and, based thereon, regulates the flow of fluid, for example, by selectively opening and/or closing the fill valve and/or discharge valve.

(Page 8, line 37 - page 9, line 7).

The incorporation of both the "electroconductive terminals" and the "control means" produces a fluid dispensing apparatus that differs markedly in overall configuration and operation than the optical-based measurement systems taught in the Keyes reference. To redesign the Keyes systems to one employing non-optical based measurement systems would have required one skilled in the art to have invested substantial effort beyond "mere substitution".

Nowhere in any of the cited art references is there any specific motivation that any advantage can be realized by switching from optical measurement to electronic measurement. Keyes teaches nothing of the problems of fluid viscosity. The secondary references are also silent. It is only in applicants' specification that the advantages of "measurement continuity" (page 9, lines 13 to 18), "ease of calibration" (page 9, line 19 to 24), and "suitability for viscous fluid dispensation" are taught in a manner providing sufficient technical enablement.

The secondary art references merely disclose the use of capacitance sensors for the continuous detection of fluid volume. Continuous detection of fluid volume is only part of the function of applicant's conductive elements and control means. It is not enough that the capacitance sensors merely announce or otherwise broadcast the volume of fluid in a container. In applicant's invention, the "electroconductive terminals" and "control means" are integrated into the fluid dispensing apparatus linked to the fluid dispensation operation thereof in a manner not taught by the Keyes, Cohen, and/or Sudolcan references.

Withdrawal of the rejection of claims 1, 2, 4, and 6 pursuant to 35 U.S.C. § 103(a) is requested.

Finally, in the Office Action, the examiner states: "Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keyes in view of Cohen and in view of Sudolcan as applied to claim 1 above, and further in view of Freund (US 4,262,542)".

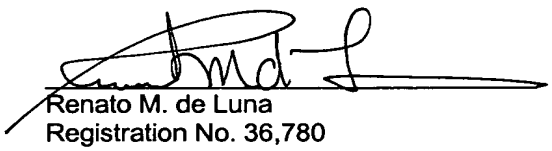
Applicant reviewed and acknowledges the examiner's comments.

Claim 5 is, however, dependent on claim 1. Claim 1 is felt non-obvious. Dependent claim 5 is also felt non-obvious. Withdrawal of rejection is requested.

***Conclusion***

The pending claims define subject matter neither described nor suggested by the cited art references. The written description, claims, and drawings meet all applicable statutory requirements. The application is in condition for allowance.

Respectfully submitted,



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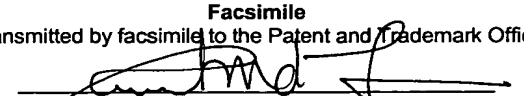

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